

Ser. No. 10/078,904
Amdt. dated 8/11/2004
Reply to Office action of 2/11/2004

PU020025

Listing of Claims:

1. (currently amended) A circuit for reducing declination errors in a liquid crystal display, comprising:
 - a decomposer for dividing an input signal into a plurality of signals having at least a high, medium and low brightness signals ~~signal and at least one low brightness signal~~;
 - at least one transient conditioner circuit including an anticipatory portion and a reactive portion for ~~reducing declination errors by~~ limiting signal transients between brightness levels in ~~said~~ at least one of said medium and low brightness signals ~~signal~~;
 - a delay match circuit for said high brightness signal; and,
 - means for combining the delayed high brightness signal with said at least one signal transient processed ~~low-brightness~~ signal to provide an output signal, wherein said output signal has reduced sparkle artifacts.
2. (original) The circuit of claim 1, wherein the decomposer divides the input signal into the high brightness signal, a medium brightness signal, and a low brightness signal and the at least one transient conditioner circuit further comprises a second transient conditioner circuit for processing the medium brightness signal to provide a processed medium brightness signal.
3. (original) The circuit of claim 2, wherein the combiner combines the processed high brightness signal, the processed low brightness signal and the processed medium brightness signal.

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4. (original) The circuit of claim 1, wherein the decomposer further comprises at least a threshold signal, wherein if the input signal is below the threshold signal, then the processed high brightness signal is zero and the at least one processed low brightness signal is the input signal and wherein if the input signal is above the threshold signal, then the processed high brightness signal is the input signal minus the threshold signal and the at least one processed low brightness signal is the threshold signal.
5. (original) The circuit of claim 2, wherein the decomposer further comprises a lower threshold and an upper threshold, wherein if the input signal is greater than the upper threshold, then the high brightness signal equals the input signal minus the upper threshold, the medium brightness signal equals the upper threshold minus the lower threshold, and the at least one low brightness signal equals the low threshold, and wherein if the input signal is less than the upper threshold but greater than the lower threshold, then the high brightness signal equals zero, the medium brightness signal equals the input signal minus the lower threshold, and the at least one low brightness signal equals the lower threshold, and wherein if the input signal is less than the lower threshold, then the high brightness signal equals zero, the medium brightness signal equals zero, and the at least one low brightness signal equals the input signal.

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6. (original) The circuit of claim 1, wherein the liquid crystal display is a liquid crystal on silicon (LCOS) display.
7. original) The circuit of claim 1, wherein the at least one transient conditioner comprises at least one recursive slew rate limiter.
8. (original) The circuit of claim 1, wherein the at least one transient conditioner comprises at least one finite response pre-conditioner for limiting bright going transients.
9. (original) The circuit of claim 1, wherein the at least one transient conditioner comprises at least one recursive slew rate limiter and at least one finite response pre-conditioner.
10. (original) The circuit of claim 1, wherein the delay match circuit comprises a sample delay circuit.
11. (original) The circuit of claim 1, wherein the at least one transient conditioner comprises an anticipatory portion and a reactive portion.

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12. (currently amended) A method for reducing declination errors in a liquid crystal display, comprising the steps of:
dividing an input signal into at least a high,
medium and low brightness signals ~~signal and at least one low brightness signal~~;
~~slew rate limiting and finite response filtering the at least one low brightness signal to reduce declination errors by limiting, including an anticipatory limiting step and a reactive limiting step, signal transients between brightness levels of at least one of said medium and low brightness signals~~;
delay matching the high brightness signal; and,
combining said at least one ~~slew rate limited and finite response filtered low brightness~~ signal and said delayed high brightness signal to form an output signal having reduced sparkle artifacts.
13. (currently amended) The method of claim 12, ~~comprising the wherein the step of limiting includes a step of~~ slew rate limiting dark going transients of said at least one of said medium and low brightness signals ~~low brightness level signal~~ and finite response filtering bright going transients of said at least one of said medium and low brightness signals ~~low brightness level signal~~.
14. (currently amended) The method of claim ~~12-13~~, ~~comprising wherein the step of~~ slew rate limiting is carried out asymmetrically ~~slew rate limiting~~.

15. (currently amended) The method of claim ~~12~~ 13, wherein
the step of limiting is carried out on said medium
brightness signal and further comprising the step of
steps:
- ~~further dividing said input signal into a medium~~
~~brightness signal having brightness levels between said~~
~~high and low brightness level signals,~~
~~limiting signal transients between brightness levels~~
~~of said medium brightness signal to further reduce~~
~~declination errors; and,~~
combining said slew rate limited and finite
response filtered signal with said high and low
brightness signals.
16. (original) The method of claim 15, comprising the
steps of:
- slew rate limiting and finite response filtering
said medium brightness signal; and,
applying different slew rates and different finite
filter responses to said medium and low brightness
signals.